

WHAT WE CLAIM IS:

1. A method of scheduling packets for delivery to one of mobile stations and a corresponding base station in a wireless packet network comprising the iterative steps of calculating channel efficiency for a mobile station and scheduling packets for delivery to said mobile station or said base station by determining a value of relative weight of said mobile station by a weighting equation, responsive to the calculated channel efficiency.

2. A method as recited in claim 1 further comprising the initial step of measuring channel quality for said mobile station.

3. A method as recited in claim 2 wherein said measured signal quality is determined by calculating effective serving rate.

4. A method as recited in claim 2 wherein said measured signal quality is determined by calculating channel usage.

5. A method as recited in claim 2 wherein said measured signal quality is determined based on measurements of one of power of desired signal, channel noise and channel interference.

6. A method as recited in claim 1 wherein said channel efficiency is determined by the equation:

$$efficiency = \frac{\text{Actual Amount of data delivered}}{\text{Maximum Amount of Data That can be delivered with the same channel resource.}}$$

7. A method as recited in claim 1 wherein said weighting equation is given by:

$$W_i = efficiency_i^{\text{exponent}}.$$

8. A method as recited in claim 7 wherein the value of weight given said mobile station may be multiplied by a multiplier.

9. A method as recited in claim 7 wherein the value of weight given said mobile station may vary by a value given said exponent.

10. A method as recited in claim 9 wherein the value given said exponent is adjustable by an operator of said base station.

11. A method as recited in claim 1 wherein users with higher channel efficiency receive a higher weight than users with a lower channel efficiency.

12. A method as recited in claim 1 wherein users with higher channel efficiency receive a lower weight than users with a lower channel efficiency.

13. A method as recited in claim 1 wherein said wireless packet network comprises an EDGE system.

14. A method as recited in claim 1 wherein said packet scheduling step comprises the step of determining a choice of system modulation scheme among a high and low packet delivery rate.

15. A method as recited in claim 1 wherein said method is responsive to the step of receiving a request for a download of data from said mobile station.

16. A method as recited in claim 9 wherein a weight for said base station is determined according selecting a value of said exponent along a horizontal axis of values from a minimum of minus two to a maximum positive value.

17. A method as recited in claim 16 where the minimum value of exponent is set at minus one.

18. A method as recited in claim 1 wherein packets are delivered via time frames, each time frame comprising a plurality of time slots, said time slots being allocated to said station for packet delivery in accordance with a selection of a packet delivery scheme.

19. The method of claim 1 applied to both downlink, said base station to said mobile station, and uplink, said mobile station to said base station, operations.

20. Base station apparatus for use in a wireless packet network comprising a processor for calculating channel efficiency for a mobile station and scheduling packets for delivery to said mobile station by periodically determining a value of relative weight of said mobile station by a weighting equation, responsive to the calculated channel efficiency.

21. Base station apparatus according to claim 20 wherein said mobile station is provided with a packet queue and associated with said packet queue is a timer for timing packet delivery.

22. Base station apparatus according to claim 20 wherein channel efficiency is determined by the equation:

$$efficiency = \frac{\text{Actual Amount of data delivered}}{\text{Maximum Amount of Data That can be delivered with the same channel resource.}}$$

23. Base station apparatus according to claim 20 wherein said weight is determined by the equation:

$$W_i = efficiency_i^{\text{exponent}}.$$

24. Base station apparatus according to claim 20 wherein said apparatus is for use in an EDGE system.

1 25. Base station apparatus according to claim 20 wherein said base station is adapted to
2 receive packets for delivery to mobile stations from a plurality of servers via the Internet.

1 26. Base station apparatus as recited in claim 23 wherein a weight for said base station is
2 determined according to selecting a value of said exponent along a horizontal axis of values from
3 a minimum of minus two to a maximum positive value.

FOOTNOTES